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Armand Azonnahin
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Introduction

Skills and Expertise

Real and Complex Analysis | Geometry | Probability | Statistical Analysis | Stochastic Processes | Applied S | ng | Algorithms

Additional affiliations

July 2019 - December 2019

University of São Paulo
Department of Mathematics (IME) (São Paulo) · São Paulo, Brazil

Position
Monitor

Description
Calculus

Top co-authors

Atsuo Kuniba
Institute of Physics, University of …

Natalia Jurga
University of Surrey

Agnieszka Zelerowicz
Pennsylvania State University

El Abdalaoui Houcein El Abdalaoui
Université de Rouen Normandie

Shaun Bullett

All co-authors (15) View All

Awards & Achievements (1)

Scholarship · Aug 2016

Phd

August 2016 - January 2020

University of São Paulo

Department of Mathematics (IME) (São Paulo) · São Paulo, Brazil

Position
PhD Student

August 2015 - July 2016

Federal University of Rio Grande do Sul

Departamento de Matemática Pura e Aplicada (DMPA) · Porto Alegre, Brazil

Position
MONITOR

Description
Vínculo: Bolsista, Enquadramento Funcional: MONITOR, Carga horária: 20h MONITOR DE CÁLCULO-A PROFESSOR ORIENTADOR : LEONARDO BONORINO Monitor em Probabilidade I Professora Orientadora : Gabriela Cybis

Education

August 2016 - January 2020

University of São Paulo

Field of study
Complex Dynamics

March 2014 - July 2016

Federal University of Rio Grande do Sul

Field of study
Mathematics

March 2013 - February 2014

Universidade Federal de Santa Catarina

Field of study

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Mathematics

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Publications

Publications (75)

First Main Results on Dynamics of Nessimian Mappings

Preprint Full-text available

Oct 2020

Armand Azonnahin

Let f : V −→ V be a Nessimian Mapping 1 of a Nessimian manifold V. We have studied the dynamics of such mapping from a probabilistic point of view, that is, we have described the asymptotic behavior of the orbit O f (x) = {f n (x), n ∈ N or Z} of a generic point. Using Nessimian Method that includes pluripotential methods, we constructed a Nessimia...

View

\textbf{\Huge{Dinâmica de Aplicações Nessimianas}}

Thesis

Sep 2020

Armand Azonnahin

Consideremos $f:\Vc \longrightarrow \Vc $ uma \textbf{Aplicação Nessimiana} \footnote{cf Definição \ref{exp}.} de uma variedade Nessimiana $\Vc$. Estudamos a dinâmica de tal aplicação de um ponto de vista probabilístico, ou seja, descrevemos o comportamento assintótico da órbita $ O_{f} (x) = \{f^{n} (x), n \in \mathbb{N} \quad \mbox{ou}\quad \mat...

View

Dinâmica de Aplicações Nessimianas

Thesis

Aug 2020

Armand Azonnahin

Consideremos $f:\Vc \longrightarrow \Vc $ uma \textbf{Aplicação Nessimiana} \footnote{cf Definição \ref{exp}.} de uma variedade Nessimiana $\Vc$. Estudamos a dinâmica de tal aplicaçãode um ponto de vista probabilístico, ou seja, descrevemos o comportamentoassintótico da órbita $ O_{f} (x) = \{f^{n} (x), n \in \mathbb{N} \quad \mbox{ou}\quad \mathb...

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The First and Second Main Results on Dynamics of Cohomological Expanding Mappings

Preprint Full-text available

Jun 2020

Armand Azonnahin

Let f : V −→ V be a Cohomological Expanding Mapping 1 of a smooth complex compact homogeneous manifold with dim C (V) = k ≥ 1 and Kodaira Dimension ≤ 0. We study the dynamics of such mapping from a probabilistic point of view, that is, we describe the asymptotic behavior of the orbit O f (x) = {f n (x), n ∈ N or Z} of a generic point. Using pluripo...

View

The Third and Fourth Main Results on Dynamics of Cohomological Expanding Mappings

Preprint Full-text available

Jun 2020

Armand Azonnahin

Let h : V −→ V be a Cohomological Expanding Mapping 1 of a smooth complex compact homogeneous manifold with dim C (V) = k ≥ 1 and Kodaira Dimension ≤ 0. We study the dynamics of such mapping from a probabilistic point of view, that is, we describe the asymptotic behavior of the orbit O h (x) = {h n (x), n ∈ N or Z} of a generic point. Using pluripo...

View

Recurrence in mean for group actions. (English) Zbl 07186897 Stoch. Dyn. 20, No. 1, Article ID 2050006, 7 p. (2020).

Technical Report Full-text available

May 2020

Armand Azonnahin

The goal of this paper is to determine the lower bound of the Hausdorff measure H h when it is finite on X and μ is T-invariant as (X, T, d) is a topological dynamical system, where (X, d) is a compact metric space with a finite measure μ and G is a countable group acting on (X, d).

View

Thurston's algorithm and rational maps from quadratic polynomial matings. (English) Zbl 07180407 Discrete Contin. Dyn. Syst., Ser. S 12, No. 8, 2403-2433 (2019).

Technical Report Full-text available

May 2020

Armand Azonnahin

The goal of this paper is to develop an iterative method for obtaining rational maps from postcritically finite quadratic matings using finite subdivision rules and the Thurston's algorithm. The author proves that the output of his iterative algorithm determines an approximation of the desired rational map, and highlights situations in which his al...

View

Measures and entropy on non compact dynamics. (English) Zbl 07188010 Dyn. Syst. 35, No. 1, 81-110 (2020).

Technical Report Full-text available

May 2020

Armand Azonnahin

The author investigates transformations of complete positive entropy on infinite measure spaces with the action of a locally compact separable sub-elementary group. The goal is to extend the reduction method of S. A. Yuzvinskij [Transl., Ser. 2, Am. Math. Soc. 66, 63-98 (1965; Zbl 0206.03602); translation from Izv. Akad. Nauk SSSR, Ser. Mat. 29, 12...

View

Empirical measures of partially hyperbolic attractors (REVIEW)

Technical Report Full-text available

May 2020

Armand Azonnahin

In this paper, the authors discuss systems satisfying a weaker form of hyperbolicity, called partial hyperbolicity. The goal is to study the properties of the limits μ of the empirical measures $m_{x,n}$ such that $$m_{x,n}:=\frac 1n \sum_{i=0}^{n-1} \delta_{f^i(x)},$$ where f is a diffeomorphism of a closed manifold M and Lebesgue almost e...

View

Characters of inductive limits of finite alternating groups. (English) Zbl 07178781 Ergodic Theory Dyn. Syst. 40, No. 4, 1068-1082 (2020)

Technical Report Full-text available

May 2020

Armand Azonnahin

The goal of this paper is to prove that if G is an L(Alt)-group and G ≇ Alt(N), then the indecomposable characters of G are precisely the associated characters χv of the ergodic invariant random subgroups v of G.

View

Measures and entropy on non compact dynamics (REVIEW)

Technical Report Full-text available

May 2020

Armand Azonnahin

In this paper, the author investigates transformations of complete positive entropy on infinite measure spaces with the action of a locally compact separable sub-elementary group. The goal is to extend the reduction method of Juzvinskiĭ to non compact dynamics. He shows that the method could be used to prove results on entropies of transformations...

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Area and Hausdorff dimension of Sierpiński carpet Julia sets. (English) Zbl 07179302 Math. Z. 294, No. 3-4, 1441-1456 (2020).

Technical Report Full-text available

May 2020

Armand Azonnahin

The authors prove that if a rational map has an attracting or a parabolic basin, then the corresponding Julia set has Hausdorff dimension strictly larger than one provided it is a Sierpiński carpet. In particular they show that some Sierpiński carpet Julia sets have zero area but have Hausdorff dimension two. Moreover, for any given number s ∈ (1,...

View

On the homogeneous ergodic bilinear averages with Möbius and Liouville weights. (English) Zbl 07179187 Ill. J. Math. 64, No. 1, 1-19 (2020).

Technical Report Full-text available

May 2020

Armand Azonnahin · El Abdalaoui Houcein El Abdalaoui

The goal of this paper is to prove that homogeneous ergodic bilinear averages with Möbius or Liouville weight converge almost surely to zero. More precisely, if T is a map acting on a probability space (X,A,v) and a,b∈Z, then for any f,g∈L2(X), for almost all x∈X, 1N∑n=1Nv(n)f(Tanx)g(Tbnx)→0. Here v is the Liouville function or the Möbius function....

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THURSTON'S ALGORITHM AND RATIONAL MAPS FROM QUADRATIC POLYNOMIAL MATINGS (REVIEW)

Technical Report Full-text available

May 2020

Armand Azonnahin

The goal of this paper is to develop an iterative method for obtaining rational maps from postcritically finite quadratic matings using finite subdivision rules and Thurston's algorithm. The author proves that the output of his iterative algorithm determines an approximation to the desired rational map, and highlight situations in which his algorit...

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AREA AND HAUSDORFF DIMENSION OF SIERPIŃSKI CARPET JULIA SETS (REVIEW)

Technical Report Full-text available

May 2020

Armand Azonnahin

In this paper the authors prove that if a rational map has an attracting or parabolic basin, then the corresponding Julia set has Hausdorff dimension strictly larger than one provided it is a Sierpiński carpet. In particular they show that some Sierpiński carpet Julia sets have zero area but have Hausdorff dimension two. Moreover, for any given num...

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ON THE HOMOGENEOUS ERGODIC BILINEAR AVERAGES WITH MÖBIUS AND LIOUVILLE WEIGHTS (REVIEW)

Technical Report Full-text available

May 2020

Armand Azonnahin

The goal of this paper is to establish that the homogeneous ergodic bilinear averages with M\"{o}bius or Liouville weight converge almost surely to zero, that is, if T is a map acting on a probability space $(X,\mathcal A,\nu)$, and $a,b \in \mathbb{Z}$, %T_1,T_2 are the powers of T, then for any $f,g \in L^2(X)$, for almost all $x \in X$,...

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Invariant random subgroups of semidirect products. (English) Zbl 07150917 Ergodic Theory Dyn. Syst. 40, No. 2, 353-366 (2020)

Technical Report Full-text available

May 2020

Armand Azonnahin · Ian ; Biringer · Lewis ; Bowen · Omer Tamuz

Invariant random subgroups of semidirect products. (English) £ ¢ ¡ Zbl 07150917 Ergodic Theory Dyn. Syst. 40, No. 2, 353-366 (2020). The authors study transverse invariant random subgroups (IRSs) of semidirect products of G = A ⋊ Γ when A is torsion-free abelian or simply connected nilpotent. In particular, they characterize all IRSs of parabolic s...

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Moduli of continuity for the Lyapunov exponents of random GL(2)-cocycles. (English) Zbl 07174522 Trans. Am. Math. Soc. 373, No. 2, 1343-1383 (2020)

Technical Report Full-text available

May 2020

Armand Azonnahin

Tall, El Hadji Yaya; Viana, Marcelo Moduli of continuity for the Lyapunov exponents of random GL(2)-cocycles. (English) £ ¢ ¡ Zbl 07174522 Trans. Am. Math. Soc. 373, No. 2, 1343-1383 (2020). The authors investigate moduli of continuity of the Lyapunov exponents of i.i.d. random GL(2)-cocycles in dimension 2. They prove that these Lyapunov exponents...

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Foliated hyperbolicity and foliations with hyperbolic leaves. (English) Zbl 07178773 Ergodic Theory Dyn. Syst. 40, No. 4, 881-903 (2020)

Technical Report Full-text available

May 2020

Armand Azonnahin

Foliated hyperbolicity and foliations with hyperbolic leaves. (English) £ ¢ ¡ Zbl 07178773 Ergodic Theory Dyn. Syst. 40, No. 4, 881-903 (2020). The concept of Hyperbolicity is a fundamental tool for understanding chaotic behavior of dynamical systems, even for non hyperbolic systems. The goal of this paper is to show that ideas from partially hyper...

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Dynamics of post-critically finite maps in higher dimension. (English) Zbl 07150915 Ergodic Theory Dyn. Syst. 40, No. 2, 289-308 (2020)

Technical Report Full-text available

May 2020

Armand Azonnahin

The author studies the dynamics of some endomorphisms of the complex projective spacePk, calledpost-critically finite (PCF).An endomorphismf:Pk→Pkis post-critically finite ifP(f,Pk):=∪n≥1fn(C(f))is algebraic, whereC(f,Pk):={z∈Pk, Df(z)is not invertible}. The setC(f,Pk)is called the critical setoffand the setP(f,Pk)is called the post-critical set of...

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Dynamics of Cohomological Expanding Mappings II : Third and Fourth Main Results

Preprint Full-text available

May 2020

Armand Azonnahin

Let f : V → V be a Cohomological Expanding Mapping1 of a smooth complex compact homogeneous manifold with $ dim_{\mathbb{C}}(\Vc)=k \ge 1$ and Kodaira Dimension ≤ 0. We study the dynamics of such mapping from a probabilistic point of view, that is, we describe the asymptotic behavior of the orbit $ O_{h} (x) = \{h^{n} (x), n \in \mathbb{N} \qu...

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Foliated Hyperbolicity and Foliations with Hyperbolic Leaves (REVIEW)

Technical Report Full-text available

May 2020

Armand Azonnahin

Hyperbolicity is a fundamental tool for understanding chaotic behavior of dynam-ical systems, even for non hyperbolic systems. The aim of this paper is to show that ideas from partially hyperbolic dynamics may be useful in the study of folia-tions, in particular when the leaves carry a negatively curved, or better a hyperbolic, Riemannian metric. T...

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Dynamics of Cohomological Expanding Mappings I: First and Second Main Results

Preprint Full-text available

Apr 2020

Armand Azonnahin

Let $f:V\rightarrow V $ be a Cohomological Expanding Mapping1 of a smooth complex compact homogeneous manifold with dimC(V) = k ≥ 1 and Kodaira Dimension ≤ 0. We study the dynamics of such mapping from a probabilistic point of view, that is, we describe the asymptotic behavior of the orbit $ O_{f} (x) = \{f^{n} (x), n \in \mathbb{N} \quad \mbo...

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Invariant random subgroups of semidirect products (REVIEW)

Research Proposal Full-text available

Apr 2020

Armand Azonnahin

In this paper, the authors study 'transverse' invariant random subgroups (IRSs) of semidi-rect products of G = A Γ when A is torsion-free abelian or simply connected nilpotent. Here, an IRS H < G is transverse if H ∩A = {0}. When A is torsion-free abelian, they prove that the projection of H to Γ acts trivially on A almost surely, and if A is a sim...

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Invariant random subgroups of semidirect products (REVIEW)

Technical Report Full-text available

Apr 2020

Armand Azonnahin

In this paper, the authors study 'transverse' invariant random subgroups (IRSs) of semidi-rect products of G = A Γ when A is torsion-free abelian or simply connected nilpotent. Here, an IRS H < G is transverse if H ∩A = {0}. When A is torsion-free abelian, they prove that the projection of H to Γ acts trivially on A almost surely, and if A is a sim...

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MODULI OF CONTINUITY FOR THE LYAPUNOV EXPONENTS OF RANDOM GL(2)-COCYCLES (REVIEW)

Technical Report Full-text available

Apr 2020

Armand Azonnahin

In this paper, the authors investigate moduli of continuity of the Lyapunov ex-ponents of i.i.d. random GL(2)-cocycles in dimension 2. They prove that theseLyapunov exponents are "H¨older continuous functions of the underlying probabil-ity distribution at each point with a simple Lyapunov spectrum and log-H¨oldercontinuous at every point". They a...

View

DYNAMICS OF POST-CRITICALLY FINITE MAPS IN HIGHER DIMENSION (REVIEW)

Technical Report Full-text available

Apr 2020

Armand Azonnahin

In this paper, the author studies the dynamics of some endomorphisms of the complex projective space $\pk$, called post-critically finite (PCF). An endomorphism $f: \pk\to \pk$ is post-critically finite if $$\pcal(f,\pk):=\bigcup_{n \geq 1} f^n(\crit(f))$$ is algebraic, where $\crit(f, \pk):=\{z \in \pk, Df(z) \text{ is not invertible}\}$. The set...

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On the stable ergodicity of Berger-Carrasco's example. (English) Zbl 07178779 Ergodic Theory Dyn. Syst. 40, No. 4, 1008-1056 (2020)

Technical Report Full-text available

Apr 2020

Armand Azonnahin

In this paper, without using accessibility, the author proves the stable ergodicity of Berger-Carrasco'sexample which is an example of a volume-preserving, partially hyperbolic diffeomorphism introduced byBerger and Carrasco. "This example is robustly non-uniformly hyperbolic, with two dimensional center,almost every point has both positive and neg...

View

Weak closure of infinite actions of rank 1, joinings, and spectrum. (English. Russian original) Zbl 07179680 Math. Notes 106, No. 6, 957-965 (2019); translation from Mat. Zametki 106, No. 6, 894-903 (2019)

Technical Report Full-text available

Apr 2020

Armand Azonnahin

In this paper, the author proved that "the ergodic self-joining of an infinite transformation of rank 1 is part of the weak limit of shifts of a diagonal measure". He also obtained a partial approximability of ergodic self-joinings of an infinite transformation of rank 1 by shifts of a diagonal measure. This fact generalizes some previous result an...

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Weak Closure of Infinite Actions of Rank 1, Joinings, and Spectrum (REVIEW)

Technical Report Full-text available

Apr 2020

Armand Azonnahin

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On the Stable Ergodicity of Berger-Carrasco's example (REVIEW)

Technical Report Full-text available

Apr 2020

Armand Azonnahin

In this paper, without using accessibility, the author proves the stable ergodicity of Berger-Carrasco's example which is an example of a volume-preserving, partially hyperbolic diffeomorphism introduced by Berger and Carrasco. "This example is robustly non-uniformly hyperbolic, with two dimensional center, almost every point has both positive and...

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Mating quadratic maps with the modular group II. (English) Zbl 07177810 Invent. Math. 220, No. 1, 185-210 (2020).

Technical Report Full-text available

Apr 2020

Armand Azonnahin · Luna Lomonaco · Shaun ; Bullett

In this paper, the authors investigated some dynamical properties of the family of (2:2) holomorphic correspondences on the Riemann sphere which have the form Fa:z→w, where (az+1z+1)2+(az+1z+1)(aw−1w−1)+(aw−1w−1)2=3 for a parameter a∈C, a≠1. They showed that matings between the modular group and rational maps in the parabolic quadratic family Per1(...

View

Single site factors of Gibbs measures. (English) Zbl 07147051 Nonlinearity 33, No. 2, 742-761 (2020).

Technical Report Full-text available

Apr 2020

Armand Azonnahin

In this article, the author showed that all of the classical uniqueness regimes (Bowen, Walters, and Hölder) from thermodynamic formalism are closed under factor maps between full shifts. In fact he proved more generally that "the classical uniqueness regimes are closed under factors between shifts of finite type provided the factor map satisfies a...

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Single site factors of Gibbs measures (REVIEW)

Technical Report Full-text available

Apr 2020

Armand Azonnahin

In this article, the author showed that all of the classical uniqueness regimes (Bowen, Walters, and Hölder) from thermodynamic formalism are closed under factor maps between full shifts. In fact he showed more generally that "the classical uniqueness regimes are closed under factors between shifts of finite type provided the factor map satisfies a...

View

Mating quadratic maps with the modular group II (REVIEW)

Technical Report Full-text available

Apr 2020

Armand Azonnahin

In this paper, the authors investigated some dynamical properties of the family of $(2:2)$ holomorphic correspondences on the Riemann sphere which have the form $\mathcal {F}_a:z \to w$, where $$\left(\frac{az+1}{z+1}\right)^2+\left(\frac{az+1}{z+1}\right)\left(\frac{aw-1}{w-1}\right) +\left(\frac{aw-1}{w-1}\right)^2=3$$ for a parameter $a\in \ma...

View

Large deviations and one-sided scaling limit of randomized multicolor box-ball system. (English) Zbl 07174420 J. Stat. Phys. 178, No. 1, 38-74 (2020).

Technical Report Full-text available

Apr 2020

Armand Azonnahin · Atsuo Kuniba · Hanbaek Lyu

The main contribution of this paper shows that, for the basic κ-color BBS, “the rescaled invariant Young diagrams converge almost surely to the equilibrium shapes as the system size tends to infinity”. The authors also give a probabilistic answer to why the two different methods assuming different initial configuration produce the same scaling limi...

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Large Deviations and One-Sided Scaling Limit of Randomized Multicolor Box-Ball System (Review)

Technical Report Full-text available

Mar 2020

Armand Azonnahin

The main contribution of this paper shows that, for the basic κ-color BBS, the rescaled invariant Young diagrams converge almost surely to the equilibrium shapes as the system size tends to infinity. The authors also give a probabilistic answer to why the two different methods assuming different initial configuration produce the same scaling...

View

Dynamics of Cohomological Expanding Mappings II : Third and Fourth Main Results

Preprint

Mar 2020

Armand Azonnahin

Let h : V −→ V be a Cohomological Expanding Mapping 1 of a smooth complex compact homogeneous manifold with dim C (V) = k ≥ 1 and Kodaira Dimension ≤ 0. We study the dynamics of such mapping from a probabilistic point of view, that is, we describe the asymptotic behavior of the orbit O h (x) = {h n (x), n ∈ N or Z} of a generic point. Using pluripo...

View

Measures of the full Hausdorff dimension for sofic affine-invariant sets on T^2. (English) Zbl 07128819

Technical Report Full-text available

Mar 2020

Armand Azonnahin · Jung-Chao ; Chang · Chih-Hung ; Chen

Measures of the full Hausdorff dimension for sofic affine-invariant sets on T 2. (English) £ ¢ ¡ Zbl 07128819 Ji, Lizhen (ed.) et al., In this paper, the authors have studied the measure of the full dimension for a general Sierpiński carpet. They have firstly given a criterion for the measure of the full Hausdorff dimension of a Sierpiński carpet,...

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Measures of the full Hausdorff dimension for a general Sierpinski carpet (REVIEW)

Technical Report Full-text available

Feb 2020

Armand Azonnahin

In this paper, the authors have studied the measure of the full dimension for a general Sierpi´nskiSierpi´nski carpet. They have firstly given a criterion for the measure of the full Hausdorff dimension of a Sierpi´nskiSierpi ´nski carpet, that is, the conditional equilibrium measure of zero potential with respect to some Gibbs measure v α of matrix...

View

Dynamics of Cohomological Expanding Mappings I : First and Second Main Results

Preprint

Feb 2020

Armand Azonnahin

Let $f:\Vc \longrightarrow \Vc $ be a Cohomological Expanding Mapping\footnote{cf Definition \ref{exp}.} of a smooth complex compact homogeneous manifold with $ dim_{\mathbb{C}}(\Vc)=k \ge 1$ and Kodaira Dimension ≤ 0. We study the dynamics of such mapping from a probabilistic point of view, that is, we describe the asymptotic behavior of the...

View

Effective estimates on the top Lyapunov exponents for random matrix products. (English) Zbl 07123771 Nonlinearity 32, No. 11, 4117-4146 (2019)

Technical Report Full-text available

Feb 2020

Armand Azonnahin · Natalia Jurga · Ian Morris

In this article the authors set out to obtain effective estimates on the Lyapunov exponent of $\mu_{\mathbf{p}}$ given by the limit $$\Lambda(\mathcal{A},\mathbf{p})=\Lambda= \lim_{n \to \infty} \frac{1}{n} \int \log \lVert {A_{i_1} \cdots A_{i_n}}\rVert \textup{d}\mu_{\mathbf{p}}(\mathbf{i})$$ where $\mathbf{i}=(i_n)_{n \in \mathbb{N}} \in \Sigma$...

View

EFFECTIVE ESTIMATES ON THE TOP LYAPUNOV EXPONENTS FOR RANDOM MATRIX PRODUCTS (REVIEW)

Technical Report Full-text available

Jan 2020

Armand Azonnahin

In this article the authors set out to obtain effective estimates on the Lyapunov exponent of $\mu_{\mathbf{p}}$ given by the limit $$\Lambda(\mathcal{A},\mathbf{p})=\Lambda= \lim_{n \to \infty} \frac{1}{n} \int \log \lVert {A_{i_1} \cdots A_{i_n}}\rVert \textup{d}\mu_{\mathbf{p}}(\mathbf{i})$$ where $\mathbf{i}=(i_n)_{n \in \mathbb{N}} \in \Sigma$...

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Dinâmica de Aplicações Cohomologicamente Expansíveis: Treze Novos Resultados

Presentation Full-text available

Jan 2020

Armand Azonnahin

\item \textbf{Esta Tese traz Treze (13) Resultados Inéditos sendo Oito Teoremas Novos e Cinco Conjecturas.} O nosso foco foi introduzir e usar umas ferramentas novíssimas chamadas \textbf{Grau Cohomológico} e \textbf{Quociente Cohomológico} na resolução de certos problemas da Dinâmica Complexa dos últimos quinze anos.\\

View

Equilibrium states in dynamical systems via geometric measure theory. (English) Zbl 07124523

Technical Report Full-text available

Jan 2020

Armand Azonnahin · Vaughn ; Climenhaga · Yakov ; Pesin · Agnieszka Zelerowicz

The purpose of this paper is to describe a third “geometric” approach, which was outlined for SRB measures: produce an equilibrium state as a limiting measure of the averaged pushforwards of some reference measure, which need not be invariant. For the physical SRB measure, this reference measure was Lebesgue; to extend this approach to other equili...

View

Hyperbolic flows

Technical Report Full-text available

Jan 2020

Armand Azonnahin

This book focuses on uniformly hyperbolic flows. The authors gave a deep "flows-first" presentation of dynamical systems by focusing on continuous-time systems rather than treating these as afterthoughts or exceptions to methods and theory developed for discrete-time systems. The book is self-contained in the technical sense, that is, it includes d...

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Dinâmica de Aplicações Cohomologicamente Expansíveis: Onze Novos Resultados

Conference Paper Full-text available

Jan 2020

Armand Azonnahin

\textbf{Esta Tese traz Onze Resultados Inéditos sendo Oito Teoremas Novos e Três Conjecturas.} O nosso foco foi introduzir e usar uma ferramenta novíssima chamada \textbf{Grau Cohomológico} na resolução de certos problemas da Dinâmica Complexa dos últimos quinze anos.\\

View

\textbf{Dynamics of Expanding Mappings}

Article

Jan 2020

Armand Azonnahin

Consideremos $f:\Vc \longrightarrow \Vc $ uma \textbf{Aplicação Cohomologicamente Expansível} \footnote{cf Definição \ref{exp}.} de uma variedade homogênea suave complexa compacta com $ dim_{\mathbb{C}}(\Vc)=k \ge 1 $ e dimensão de Kodaira ≤ 0. Estudamos a dinâmica de tal aplicação de um ponto de vista probabilístico, ou seja, descrevemos o co...

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Dinâmica de Aplicações Cohomologicamente Expansíveis

Research

Jan 2020

Armand Azonnahin

Let $f:\Vc \longrightarrow \Vc $ be a Cohomological Expanding Mapping\footnote{cf Definição \ref{exp}.} of a smooth complex compact homogeneous manifold with $ dim_{\mathbb{C}}(\Vc)=k \ge 1$ and Kodaira Dimension ≤ 0. We studied the dynamics of such mapping from a probabilistic point of view, that is, we described the asymptotic behavior of th...

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Dinâmica de Aplicações Cohomologicamente Expansíveis

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Jan 2020

Armand Azonnahin

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EQUILIBRIUM STATES IN DYNAMICAL SYSTEMS VIA GEOMETRIC MEASURE THEORY (REVIEW)

Technical Report Full-text available

Jan 2020

Armand Azonnahin

The purpose of this paper is to describe a third "geometric" approach, which was outlined for SRB measures: produce an equilibrium state as a limiting measure of the averaged pushforwards of some reference measure, which need not be invariant. For the physical SRB measure, this reference measure was Lebesgue; to extend this approach to other equili...

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\textbf{Dynamics of Cohomological Expanding Mappings}.

Thesis

Jan 2020

Armand Azonnahin

Let $f:\Vc \longrightarrow \Vc $ be a Cohomological Expanding Mapping\footnote{cf Definição \ref{exp}.} of a smooth complex compact homogeneous manifold with $ dim_{\mathbb{C}}(\Vc)=k \ge 1$ and Kodaira Dimension ≤ 0. We studied the dynamics of such mapping from a probabilistic point of view, that is, we described the asymptotic behavior of th...

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Review of the Book ”Hyperbolic flows”

Technical Report Full-text available

Jan 2020

Armand Azonnahin

This book focuses on uniformly hyperbolic flows. The authors gave a deep "flows-first" presentation of dynamical systems by focusing on continuous-time systems rather than treating these as afterthoughts or exceptions to methods and theory developed for discrete-time systems. The book is self-contained in the technical sense, that is, it includes d...

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Hilbert space Lyapunov exponent stability

Technical Report Full-text available

Jan 2020

Armand Azonnahin

The aim of this paper is to provide an initial step in establishing conditions for the stability of Lyapunov exponents and so-called Oseledets spaces, the essential components underlying multiplicative ergodic theory, in an infinite-dimensional context. The authors studied cocycles taking values in compact operators on a separable Hilbert space and...

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Rate of convergence in the weak invariance principle for deterministic systems.

Technical Report Full-text available

Dec 2019

Armand Azonnahin

The main object of this paper is to obtain the first estimates of the rates of convergence in the WIP (weak invariance principle) for uniformly and nonuniformly hyperbolic dynamical systems. These results hold for uniformly expanding/hyperbolic (Axiom A) systems, as well as nonuniformly expanding/hyperbolic systems such as dispersing billiards, Hén...

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Graus Cohomológicos

Article

Oct 2019

Armand Azonnahin

We recall the proof that for an endomorphism f of an abelian manifold defined over an algebraically closed field of arbitrary characteristic, $ \chi_ {2q} (f) = \lambda_q (f) $. Note that this paper is anoher versão of recent results due to Fei Hu .

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Graus Dinâmicos e Cohomológicos

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Oct 2019

Armand Azonnahin

We prove that for an endomorphism f of an abelian manifold defined over an algebraically closed field of arbitrary characteristic, $ \chi_ {2q} (f) = \lambda_q (f) $. Note that this paper is based on recent results due to Fei Hu \cite{Hu19}, \cite{Hu-cndd}, \cite{Hu-Tits} e Truong \cite {Truong1611}.

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Dinâmica de Aplicações Cohomologicamente Hiperbólicas

Article

Sep 2019

Armand Azonnahin

Let f:X⟶X be a Cohomological Hyperbolic Mapping of a complex compact connected Kähler manifold with dimC(X)=k≥1. We want to study the dynamics of such mapping from a probabilistic point of view, that is, we will try to describe the asymptotic behavior of the orbit Of(x)={fn(x),n∈N or Z} of a generic point. To do this, using pluripotential methods,...

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Din\^amica de Aplica\c{c}\~oes Cohomologicamente Hiperb\'olicas

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Sep 2019

Armand Azonnahin

Let $f:X \longrightarrow X $ be a Cohomological Hyperbolic Mapping of a complex compact connected K\"ahler manifold with $ dim_{\mathbb{C}}(X)=k \ge 1$. We want to study the dynamics of such mapping from a probabilistic point of view, that is, we will try to describe the asymptotic behavior of the orbit $ O_{f} (x) = \{f^{n} (x), n \in \mathbb{N}$...

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On Cohomological Stochastic Dynamics of Higher Dimensions

Article

Sep 2019

Armand Azonnahin

Here is one of the best and the more recent books on Complex Dynamics in Higer Dimension. Here, we develop a calculus on positive closed currents of arbitrary bidegree on compact K{\"a}hler manifolds after recalling a notion of super-potential associated to such currents by using deformations in the space of currents. We define in particular the in...

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Sep 2019

Armand Azonnahin

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On Cohomological Stochastic Dynamic of Higher Dimensions

Book

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Armand Azonnahin

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Dynamics of Cohomological Expanding Mappings

Article

Aug 2019

Armand Azonnahin

Let f : X −→ X be a Cohomological Expanding Mapping of a complex compact connected Kähler manifold with dim C (X) = k ≥ 1. We want to study the dynamics of such mapping from a probabilistic point of view, that is, we will try to describe the asymptotic behavior of the orbit O f (x) = {f n (x), n ∈ N or Z} of a generic point. To do this, using pluri...

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Conceitos Fundamentais e Métodos Pluripotenciais para Aplicações Cohomologicamente Expansíveis

Preprint

Jul 2019

Armand Azonnahin

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Dinâmica de Aplicações Cohomologicamente Expansíveis

Presentation Full-text available

Jun 2019

Armand Azonnahin

Consideremos $f:X \longrightarrow X $ uma Aplicação Cohomologicamente Expansível \footnote{cf Definição fundamental mais adiante.} de uma variedade Kähleriana complexa conexa e compacta ~\cite{Gr1} ~\cite{Gr2} com $ dim_{\mathbb{C}}(X)=k \ge 1 $. Queremos estudar a dinâmica de tal aplicação de um ponto de vista probabilístico, ou seja, vamos tentar...

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32CBM IMPA ARMAND POSTER

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Apr 2019

Armand Azonnahin

Consideremos $f:X \longrightarrow X $ uma Aplicação Cohomologicamente Expansível de uma variedade Kähleriana complexa conexa e compacta com $ dim_{\mathbb{C}}(X)=k \ge 1 $. Queremos estudar a dinâmica de tal aplicação de um ponto de vista probabilístico, ou seja, vamos tentar descrever o comportamento assintótico da órbita $ O_{f} (x) = \{f^{n} (x)...

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32CBM IMPA ARMAND ABSTRACT

Conference Paper

Apr 2019

Armand Azonnahin

Let f : X −→ X be a Cohomological Expanding Mapping of a complex Kählerian manifold connected and compact with dim C (X) = k ≥ 1. We want to study the dynamics of such mapping from a probabilistic point of view, that is, we will try to describe the asymptotic behavior of the orbit O f (x) = {f n (x), n ∈ N or Z} of a generic point. To do this, usin...

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Dynamics of Cohomological Expanding Mappings

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Apr 2019

Armand Azonnahin

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Feb 2018

Armand Azonnahin

Função de Weierstrass

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Armand Azonnahin

Desenvolver uma teoria de representação para as Transformadas Discretas de Hilbert (DHT) análoga à famosa representação de Stefanie Petermichl para a Transformada Contínua de Hilbert (TCH).

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Oct 2015

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Presentation Full-text available

Jun 2015

Armand Azonnahin

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